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Generic validation of structural content with parametric modules

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Source [International Conference on Functional Programming archive](#)
Proceedings of the sixth ACM SIGPLAN international conference on Functional programming [table of contents](#)
 Florence, Italy
 Session: [Session 3 table of contents](#)
 Pages: 98 - 109
 Year of Publication: 2001
 ISBN:1-58113-415-0
 Also published in ...

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Sponsor [SIGPLAN](#): ACM Special Interest Group on Programming Languages

Publisher ACM Press New York, NY, USA

10/655,156

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↑ ABSTRACT

We demonstrate a natural mapping from XML element types to ML module expressions. The mapping is inductive and definitions of common XML operations can be derived as the module expressions are composed. We show how to derive, in a generic way, the validation function, which checks an XML document for conformance to its DTD (Document Type Definition). One can view validation as assigning ML types to XML elements and the validation procedure a pre-requisite for typeful XML programming in ML. Our mapping uses the parametric module facility of ML in some contrived way. For example, in validating WML (WAP Markup Language) documents, we need to use 36ary type constructors, as well as higher-order modules that take in as many as 17 modules as input. That one can systematically model XML DTDs at the module level suggests ML-like languages are suitable for type-safe prototyping of DTD-aware XML applications.

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Note: OCR errors may be found in this Reference List extracted from the full text article. ACM has opted to expose the complete List rather than only correct and linked references.

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↑ CITINGS

Tyng-Ruey Chuang, Jan-Li Lin, On modular transformation of structural content, Proceedings of the 2004 ACM symposium on Document engineering, October 28-30, 2004, Milwaukee, Wisconsin, USA

↑ INDEX TERMS

Primary Classification:

F. Theory of Computation

↳ F.3 LOGICS AND MEANINGS OF PROGRAMS

↳ F.3.3 Studies of Program Constructs

Additional Classification:

D. Software

↳ D.3 PROGRAMMING LANGUAGES

↳ D.3.2 Language Classifications

↳ **Nouns:** ML

I. Computing Methodologies

↳ I.7 DOCUMENT AND TEXT PROCESSING

↳ I.7.2 Document Preparation

↳ **Nouns:** XML

General Terms:

Algorithms, Design, Languages, Theory

Keywords:

ML, XML, fixed points, functional programming, modules and interfaces, validation

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